Abstract

Methods and apparatus are provided for encoding data. The method includes (a) providing a first table of first component values multiplied by code generator coefficients and a second table of second component values multiplied by the code generator coefficients, (b) determining a Galois field element based on a message symbol and a high order remainder symbol, (c) separating the Galois field element into first and second components, (d) using the first component and a generator coefficient index to access one or more first table values in the first table and using the second component and the generator coefficient index to access one or more second table values in the second table, (e) determining a current remainder symbol based on first and second table values having equal generator coefficient indices, and a previous remainder symbol, (f) performing step (e) for each generator coefficient of the code generator to provide a set of remainder symbols, and (g) performing steps (b) – (f) for each message symbol in a codeword to provide a set of final remainder symbols which constitute check symbols to be transmitted with the message symbols of the codeword.

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